IN THE CLAIMS

1   1. (original) A method for communicating a bit stream using turbo coding

2   comprising:

3   encoding each input bit in the bit stream using a single 1/3 rate turbo

4   encoder to produce a set of three bits for each input bit;

5   repeating one of the three bits in each set to produce a set of four bits for

6   each input bit;

7   increasing a time interval between the four bits in the set before transmitting

8   the set of four bits on a communications channel;

9   decreasing the time interval between the set of four bits received via the

10   communications channel;

11   diversity combining the received set of four bits into a received set of three

12   bits; and

13   decoding each received set of three bits using a 1/3 rate turbo decoder to

14   recover an output bit for each input bit.

1   2. (original) The method of claim 1 wherein encoding uses two coders, each with a

2   1/2 rate turbo coder, and a first interleaver.

1   3. (original) The method of claim 1 wherein one of the three bits is repeated in a

2   cyclic manner.

1   4. (original) The method of claim 1 wherein the time interval is increased with a

2   second interleaver.

5. (original) The method of claim 1 wherein the time interval between any two identical bits is larger than a channel coherent time.

6. (original) The method of claim 1 wherein diversity combining uses selection diversity.

7. (original) The method of claim 1 wherein diversity combining uses equal gain diversity.

8. (original) The method of claim 1 wherein diversity combining uses maximum ratio combining.

9. (original) The method of claim 1 wherein the decoding uses maximum a prior processes.

10. (original) The method of claim 1 wherein the diversity combining is applied to the set of four received bits.

11. (original) A system for communicating a bit stream using turbo coding comprising:

a transmitter further comprising a single 1/3 rate turbo encoder configured to encode each input bit in the bit stream using to produce a set of three bits, a bit repeater configured to repeat one of the three bits in each set to produce a set of four bits for each input bit, and an interleaver configured to increase a time interval between the four bits in the set before transmitting the set of four bits on a communications channel; and

9   a receiver further comprising a de-interleaver configured to decrease the

10 time interval between the set of four bits received via the communications channel,

11 a diversity combiner configured to reduce the received set of four bits into a

12 received set of three bits, and a single 1/3 rate turbo decoder configured to decode

13 each received set of three bits to recover an output bit for each input bit.